UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/678,376	10/06/2003	Vinayek K. Singh	32894-188142	4030

			EXAMINER
26694	7590	11/18/2004	BORLINGHAUS, JASON M

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ART UNIT	PAPER NUMBER
3628	

DATE MAILED: 11/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/678,376	SINGH ET AL.
	Examiner	Art Unit
	Jason M. Borlinghaus	3628

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *3/4/04*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10/6/03* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date *10/6/03 & 3/4/04*.

4)☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____ .

Claim Objections

Claim 26 is objected to because of the following informalities: misspelling. Claim 26 states, "A method as in claim 1, wherein said prices are determined based on at least one of current market prices, knowledge of said products and a <u>at least me</u> financial model of said products." Examiner assumes that applicant meant to type "at least one financial model of said products." Appropriate correction is required.

Claims 29 and 30 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

A proper dependent claim shall not conceivably be infringed by anything which would not also infringe the basic claim. See MPEP § 608.01(n), Section III. However, the depending Claims 29 and 30 recite "A computer for performing the method of Claim 1" and "A computer-readable medium having software for performing the method of Claim 1," respectively. Applying the infringement test, what is needed to infringe Claim 29 for example, a computer for performing the method of Claim 1. However, such a computer would not infringe the method steps of Claim 1 since the computer itself never performs any of the active steps required by the method. In other words, mere possession of such a computer would infringe Claim 29 but this is not enough to infringe Claim 1. As a result, Claims 29 and 30 are improper dependent claims.

Claim Rejections - 35 USC § 101

Claims 1 – 10, 12 – 14 and 16 – 28 are rejected under 35 U.S.C. 101 because

the claimed invention is directed to non-statutory subject matter.

The basis of this rejection is set forth in a two-prong test of:

(1) whether the invention is within the technological arts; and

(2) whether the invention produces a useful, concrete, and tangible result.

For a claimed invention to be statutory, the claimed invention must be within the

technological arts. Mere ideas in the abstract that do not apply, involve, use, or advance

the technological arts fail to promote the "progress of science and the useful arts" and

therefore are found to be non-statutory subject matter. For a process claim to pass

muster, the recited process must somehow apply, involve, use, or advance the

technological arts.

In the present case, Claims 1 – 10, 12 – 14 and 16 – 28 only recite an abstract

idea. Claims 1 – 10, 12 – 14 and 16 – 28 are do not apply, involve, use, or advance the

technological arts since all of the recited steps can be performed in the mind of the user

or by use a pencil and paper.

Additionally, for a claimed invention to be statutory, the claimed invention must

produce a useful, concrete, and tangible result. In the present case, the claimed

invention matches barter items between participants (ie. repeatable) to satisfy

participants' barter parameters (ie. useful and tangible).

Although the recited process produces a useful, concrete, and tangible result,

since the claimed invention, as a whole, is not within the technological arts as explained

above, Claims 1 – 10, 12 – 14 and 16 – 28 are deemed to be directed to non-statutory

subject matter.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 – 15, 18, 26 - 31 are rejected under 35 U.S.C. 102(e) as being

anticipated by Himmelstein (Patent Pub. US 2002/0038278 A1).

Regarding Claim 1, Himmelstein discloses a method for matching orders

comprising:

- the steps of receiving a plurality of orders from a plurality of participants

  (plurality of participants) to buy and/or sell a plurality of products, each

  order being a unilateral order from one of said participants identifying a

  number of units of said products to buy or sell (see abstract). While

  Himmelstein does not explicitly state that each order is a unilateral order,

  Himmelstein satisfies the definition of a unilateral order as defined by

  applicant – "unilateral orders lacks any designation as to what units need

  to be exchanged for other units". "Where the system or a designated

  entity acts as an intermediary, a barterer can create a barter order that

does not require a security at the same time it barters away its own

security." (see page 11, paragraph 0119);

- setting swap prices (barter value) for said products (see abstract); and

- matching units of said orders based on constrained net activity for said

    participants and said products to maximize a number of units matched to

    obtain matched orders and unmatched orders, said independent of said

    swap prices. ("The matching process functionally operates as a filter to

    display posted orders matching a selected criteria...The quantity of the

    selected item may also be used for filtering to require a direct quantity

    match or a match within a quantity range.") (see page 4, paragraph 0039).

Regarding Claim 2, Himmelstein discloses a matching system based on

constrained net activity for said participants comprises matching units of orders such

that a number of units to buy for a participant equals a number of units to sell for said

participant. ("The matching process functionally operates as a filter to display posted

orders matching a selected criteria...The quantity of the selected item may also be used

for filtering to require a direct quantity match or a match within a quantity range.") (see

page 4, paragraph 0039).

Regarding Claim 3, Himmelstein discloses a method wherein said number of

units to buy and said number of units to sell are weighted with non-unitary weightings

(barter value). ("The purpose is to simplify the barter values to be essentially equal to a

common value or multiple common values in the system to facilitate more barter

transactions.") (see page 13, paragraph 0139).

Regarding Claim 4, Himmelstein discloses a method wherein said non-unitary

weightings are based on said swap prices (barter value). (see abstract).

Regarding Claim 5, Himmelstein discloses a method wherein said matching

based on constrained net activity for said products comprises matching units of orders

such that a number of units to buy for a product equals a total number of units to sell for

said product. ("The matching process functionally operates as a filter to display posted

orders matching a selected criteria...The quantity of the selected item may also be used

for filtering to require a direct quantity match or a match within a quantity range.") (see

page 4, paragraph 0039).

Regarding Claim 6, Himmelstein discloses a method wherein said matching

comprises matching units of orders such that a number of units to buy and sell is

maximized. ("The matching process functionally operates as a filter to display posted

orders matching a selected criteria...The quantity of the selected item may also be used

for filtering to require a direct quantity match or a match within a quantity range.") (see

page 4, paragraph 0039).

Regarding Claim 7, Himmelstein discloses a method wherein said number of

units to buy and to sell is weighted with non-unitary weightings (barter value). ("The

purpose is to simplify the barter values to be essentially equal to a common value or

multiple common values in the system to facilitate more barter transactions.") (see page

13, paragraph 039).

Regarding Claim 8, Himmelstein discloses a method wherein said non-unitary

weightings are based on said swap prices (barter value).

Regarding Claim 9, Himmelstein discloses a method wherein said unilateral

order (barter order) is irrespective of a price to buy or sell. While Himmelstein does not

explicitly state that the unilateral order is irrespective of price, Himmelstein does state

that "...a barter order that includes the item to be traded, the item desired and additional

parameters." (see page 3, paragraph 0030). Furthermore, Himmelstein states, "Other

criteria such as market value and the other parameters identified in figs. 9A and 9B for

each barter item may be displayed and used for matching. For example, where barter

value is required to be matched..." (see page 4, paragraph 0042). Himmelstein's

statements indicate that unilateral orders could be established according to other

additional parameters, irrespective of price.

Regarding Claim 10, Himmelstein discloses a method wherein at least one

participant submits a plurality of unilateral orders (first class of items to be bartered and

a second class of items to be acquired). (see abstract).

Regarding Claim 11, Himmelstein discloses a method wherein said unilateral

orders are received electronically via a network (Internet). (see figure 1).

Regarding Claim 12, Himmelstein discloses a method further comprising the step

of determining valuation differences for each participant based on said matched orders

and said swap prices (barter value). While Himmelstein does not explicitly state the

determination of valuation differences, such determination is inherent in Himmelstein's

statement that, "Using web barter dollars or cash simplifies the matching of barter

orders where items of unequal value are traded." (see page 2, paragraph 0023).

Regarding Claim 13, Himmelstein discloses a method wherein said matching comprises minimizing said valuation differences. While Himmelstein does not explicitly state the minimizing of valuation differences, such minimization is inherent in Himmelstein's statement that, "The matching process functionally operates as a filter to display posted orders matching a selected criteria." (see page 4, paragraph 0039). Himmelstein had previously established that the selected criteria included "market value of the items to be bartered and the value determined by the barterer." (see page 1, paragraph 0008).

Regarding Claim 14, Himmelstein discloses a method further comprising of notifying each participant having at least one matched order of said matched order (display matchers). (see figure 4D).

Regarding Claim 15, Himmelstein discloses a method wherein each participant is notified electronically via a network (Internet). (see figure 1).

Regarding Claim 18, Himmelstein discloses a method wherein said occurs after each order is received. (see figure 4D, 448).

Regarding Claim 26, Himmelstein discloses a method wherein said prices are determined based on at least one of current market prices (available stock trading prices – see page 7, paragraph 0073), knowledge of said products (barter value – see abstract), and at least one financial model of said products ("Several ratio formulas, termed Himmelstein Value Ratios, are provided to assist the barterer." – see page 7, paragraph 0074).

Regarding Claim 27, Himmelstein discloses a method further comprising a set of swapping said matched orders and money to obtain swapped orders and swapped money. (see fig. 7C).

Regarding Claim 28, Himmelstein discloses a method wherein said products comprise at least one of commodities, securities, financial contracts, money, and any combination thereof. (see page 1, paragraph 0007).

Regarding Claim 29, a computer for performing the method and is inherent in Himmelstein.

Regarding Claim 30, a computer-readable medium having software for performing the method and is inherent in Himmelstein.

Regarding Claim 31, Himmelstein discloses a system for matching orders comprising:

- means for receiving a plurality of orders from a plurality of participants (plurality of parties) to buy and/or sell a plurality of products, each order being a unilateral order from one of said participants identifying a number of units of said products to buy or sell (see abstract). While Himmelstein does not explicitly state that each order is a unilateral order, Himmelstein satisfies the definition of a unilateral order as defined by applicant – "unilateral orders lacks any designation as to what units need to be exchanged for other units". "Where the system or a designated entity acts as an intermediary, a barterer can create a barter order that does not

require a security at the same time it barters away its own security." (see

page 11, paragraph 0119);

- means for setting swap prices (barter value) for said products (see

    abstract); and

- means for matching units of said orders based on constrained net activity

    for said participants and said products to maximize a number of units

    matched to obtain matched orders and unmatched orders, said

    independent of said swap prices. ("The matching process functionally

    operates as a filter to display posted orders matching a selected

    criteria...The quantity of the selected item may also be used for filtering to

    require a direct quantity match or a match within a quantity range.") (see

    page 4, paragraph 0039).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1.   Determining the scope and contents of the prior art.
2.   Ascertaining the differences between the prior art and the claims at issue.
3.   Resolving the level of ordinary skill in the pertinent art.

4.   Considering objective evidence present in the application indicating
        obviousness or nonobviousness.

Claims 16 – 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Himmelstein in view of Nymeyer (US Patent 3,581,072).

Regarding Claim 16, Himmelstein does not teach a method wherein said

matching occurs after expiration of a period for receiving orders.

Nymeyer discloses a method wherein said matching (traded) after expiration of a

period for receiving orders (order period). (see col. 12, lines 67 – 77).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to have modified Himmelstein by incorporating a period in which to

receive orders, as was done by Nymeyer, to allow for a closed set of orders to be

matched, allowing for optimal matching between orders.

Regarding Claim 17, Himmelstein discloses a method wherein orders include

unmatched orders (residual amounts) from said period. (see page 9, paragraph 104).

Himmelstein does not teach a method, further comprising a next period for

receiving orders, said next period occurring after said matching.

Nymeyer discloses a method, further comprising a next period (new order period)

for receiving orders, said next period occurring after said matching. (see col. 12, lines

67 – 77).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to have modified Himmelstein's ability to match unmatched orders

with the Nymeyer's structure of numerous periods to allow for repeated attempts to

match unmatched orders.

Claims 19 – 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Himmelstein in view of Katz (Patent Pub. US 2002/0178077 A1).

Regarding Claim 19, Himmselstein discloses a method for matching orders.

Himmelstein does not teach a method wherein the matching uses linear programming.

Katz discloses a method wherein the matching (optimization) uses linear programming. (see page 8, paragraph 082).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have constructed Himmelstein's method for matching orders with linear programming, as was done in Katz, to allow for the optimal match to be located from the user-defined constraints, an objective function bound by maximum and minimum variables.

Regarding Claim 20, Himmselstein discloses a method for matching orders.

Himmelstein does not teach a method wherein the matching uses quadratic or higher-order programming.

Katz discloses a method wherein the matching (optimization) uses quadratic programming. (see page 8, paragraph 082).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have constructed Himmelstein's method for matching orders with quadratic programming, as was done in Katz, to allow for the optimal match to be located with the minimum variance between matched orders.

Claims 21 – 22 and 32 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Himmelstein in view of Keith (Patent Pub. US 2001/0042040 A1).

Regarding Claim 21, Himmelstein does not teach a method further comprising a

step of determining a priority for each order.

Keith discloses a method further comprising a step of determining a priority for

each order. (see page 3, paragraph 0052 and page 14, paragraph 0238).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to have modified Himmelstein to incorporate the ability to prioritize

orders, as was done in Keith, to prove another methodology by which to match orders.

Regarding Claim 22, Himmelstein does not teach a method wherein said

matching further comprises matching of units of said orders based on priorities of said

orders.

Keith discloses a method (BidPlus) wherein said matching (pairing) further

comprises matching of units of said orders based on priorities of said orders. ("...by

giving such party superior priority in pairing with the best contra side order.") (see page

14, paragraph 0238).

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to have modified Himmelstein to incorporate the ability to match

orders based upon priority, as was done in Keith, to prove another methodology by

which to match orders.

Regarding Claim 32, Himmelstein does not teach a method wherein said matching further comprises matching of units of said orders based on priorities of said orders.

Keith discloses a method (BidPlus) wherein said matching (pairing) further comprises matching of units of said orders based on priorities of said orders. ("...by giving such party superior priority in pairing with the best contra side order.") (see page 14, paragraph 0238).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Himmelstein to incorporate the ability to match orders based upon priority, as was done in Keith, to prove another methodology by which to match orders.

Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Himmelstein in view of Keith, as applied to Claim 22 above, and further in view of Katz (Patent Pub. US 2002/0178077 A1).

Regarding Claim 23, Himmelstein and Keith disclose a method of matching orders.

Neither Himmelstein nor Keith teach a method wherein said matching uses quadratic or higher-order programming.

Katz discloses a method wherein the matching (optimization) uses quadratic programming. (see page 8, paragraph 082).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have constructed Himmelstein and Keith's method for matching

orders with quadratic programming, as was done in Katz, to allow for the optimal match to be located with the minimum variance between the matched orders.

Regarding Claim 24, Himmelstein does not teach a method wherein said matching used iterative linear programming to match orders having higher priority over orders having lower priority.

Keith discloses a method (BidPlus) wherein said matching (pairing) match orders having higher priority over orders having lower priority. ("...by giving such party superior priority in pairing with the best contra side order.") (see page 14, paragraph 0238).

Keith does not teach constructing said matching in iterative linear programming.

Katz discloses a method wherein the matching (optimization) uses linear programming. (see page 8, paragraph 082).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have constructed Himmelstein and Keith's method for matching orders with linear programming, as was done in Katz, to allow for the optimal match to be located from the user-defined constraints, an objective function bound by maximum and minimum variables.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Himmelstein in view of Keith and Katz, as applied to Claim 24 above, and further in view of Lange (US 2003/0236738 A1).

Himmelstein and Keith disclose a method of matching.

Neither Himmelstein nor Keith disclose a method wherein said matching uses heuristics to hot start or cold start iterations of said iterative linear programming.

Katz discloses a method wherein the matching (optimization) uses linear programming. (see page 8, paragraph 082).

Katz does not teach using heuristics to hot start or cold start iterations.

Lange discloses a method wherein said matching (calculating equilibrium) uses heuristics to hot start or cold start iterations. "This equilibrium is calculated using the last equilibrium prices and fills as the initial starting point. This is referred to as "hot starting" the equilibrium calculation, which is significantly faster than resetting all the order fills to 0 and recalculating the equilibrium each time new orders are processed (cold start)." (see page 174, paragraph 2571).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have constructed Himmelstein and Keith's method for matching orders with linear programming, as was done in Katz, to allow for the optimal match to be located from the user-defined constraints, an objective function bound by maximum and minimum variables. Furthermore, it would have been obvious to allow for hot start or cold start iterations, as was done in Lange, to increase the speed at which matching takes place.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Borlinghaus whose telephone number is (703) 308-9552. The examiner can normally be reached on 8:30am-5:00pm M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Hyung Sough can be reached on (703) 308-0505. The fax phone number

for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

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